Oct. 2, 2009

Vol. 49, No. 20

Spaceport News

John F. Kennedy Space Center - America's gateway to the universe

www.nasa.gov/centers/kennedy/news/snews/spnews_toc.html

Firing Room 1 ready for another 'first'

By Cheryl Mansfield
Spaceport News

If rooms could boast about an illustrious past, then the Kennedy's Launch Control Center Firing Room 1 would have ample reason. Soon another chapter of launch history will be written from there as the Ares I-X launch team assembles in the newly remodeled nerve center for the rocket's flight test.

A gathering on Sept. 25 honored the history and marked the firing room's new mission as NASA's Constellation Program officially took possession of the facility.

Among those with special ties to the firing room was astronaut Bob Crippen, who, along with John Young, flew the first space shuttle mission.

The firing room was used for that launch and named in their honor a few years ago.

"I expect nothing but success from this firing room in the future," Crippen said. "Getting ready to launch the Ares out of this firing room is an important event. The future of human spaceflight is dependent on it, in my opinion."

He concluded, "We're going to have hundreds of launches right out of this control room that John and I are very proud to have our names on."

Kennedy Center Director Bob Cabana, veteran shuttle astronaut, explained that the new design of the firing room allows it to be configured for whatever the future launch needs might be.

"It's great to be here because this is our future," said Cabana. "We're going to be launching rockets, we're going to be exploring beyond low Earth orbit, we're going to be sending humans and payloads to space, and it's going to happen from this firing room."

Constellation Program Manager Jeff Hanley explained that the room already is serving the program, being used the previous week for an Ares I-X launch simulation, as well as for powered testing of the actual rocket.

"I'm so proud of the team that has continued to go forward with our plan," Hanley said. "This room is evidence of that. The rocket that is stacked in High Bay 3 (of the Vehicle Assembly Building) is evidence of that."

NASA/Kim Shiflett

NASA's Constellation Program officialy took over the Launch Control Center's Firing Room 1 during a ceremony at Kennedy Space Center on Sept. 25. From left, are Director of the Constellation Projects Office Pepper Phillips, Center Director Bob Cabana, former astronaut Bob Crippen, Constellation Program Manager Jeff Hanley and Center Operations Deputy Director Nancy Bray.

Firing Room 1 famous firsts

Saturn V launch
Saturn V launch with crew
Moon mission launch with crew
Space shuttle launch

Launch of the Ares I-X flight test is targeted for Oct. 27. Follow the mission at: **http://www.nasa.gov/ares**

Inside this issue . . .

Alternative-fuel fleet offers many options

By Steven Siceloff
Spaceport News

NASA/Kim Shiflett

Kennedy Space Center workers recently tried out several electric vehicles that may be used on the center in the future and checked out the technology that can recharge the cars and trucks using sunlight instead of fossil fuels.

Electric cars are still odd enough to get noticed, but Bruce Chesson hopes that changes as more make their way onto Kennedy Space Center's roads.

Chesson, who is Kennedy's coordinator for alternative-fuel vehicles, says he plans to have Kennedy's entire fleet of 1,686 vehicles running on substances other than gasoline by 2025, hopefully by 2020. That means some electric-powered vehicles, others with hydrogen fuel cells and others that run on 85 percent ethanol. Kennedy currently operates 104 vehicles on compressed natural gas and manufacturers are starting to produce those vehicles again.

"There is no silver bullet, so we have to use all the fuels," he said during a recent seminar about options for electric vehicles and what an infrastructure for charging the cars and carts might look like at Kennedy.

The attraction to alternative fuels comes from their economy and environmental considerations compared to conventional gasoline. From a cost standpoint, an electric vehicle can go 100 miles for $1.97. Electric cars also don't emit pollutants, and in the case of Kennedy, the solar arrays under construction could eventually provide electricity to the cars cleanly. A fuel cell's exhaust is only water vapor.

Kennedy is unique among NASA centers because it is stretched out, covering some 144,000 acres with buildings grouped together in separate zones, such as the Industrial Area, Vehicle Assembly Building area and Launch Complex 39.

Therefore, Chesson did not try to find an electric vehicle that would work for all situations. As corporate representatives at the seminar pointed out, there are limits on speed and distance for the electric vehicles, so there really isn't a one-size-fits-all option, anyway.

"When I first started looking at it, I thought, it won't make it because we're going to have to go from the Industrial Area out to the VAB," Chesson said. "Then I started thinking, wait a minute, we've got pods we can be in. Out of those three main pods, they work fine within that. If you have to go outside of that, well, we've got other vehicles to do that. So we need some vehicles that can do that, but we don't need all of them to do that."

Instead, Chesson started picking up low-speed electric carts that can carry workers around the small areas but are not expected to travel between the areas.

For instance, a maintenance team can use an electric cart instead of a gas-powered cart to go from the Operations and Checkout Building to Headquarters.

Since buying the first electric car for the center in 2005, there are now 33 electric vehicles operating at Kennedy.

The options for such vehicles are increasing quickly as more companies get involved in the industry. Miles Electric Vehicles, for example, showed off its electric car Sept. 15 at the Training Auditorium that can travel up to 45 miles on a charge.

T3 Motion Inc. brought along its micro-car that operates for 10 cents a day, along with a scooter that security forces could use to patrol small areas or for orbiter wing walkers and safety sniff checks on the runway after orbiter landings.

The fleet conversion is about more than buying new vehicles. It also means building an infrastructure with more fueling options than simply regular or premium gasoline. Buildings at Kennedy are expected to be fitted with outlets so the electric cars can be charged, and hydrogen tanks are going to be installed in the Industrial Area and at LC-39 for the fuel cell vehicles.

Helda Rodriguez, president of NovaCharge, says her company expects a million electric cars to be on American roads by 2015, a goal that can only be achieved if consumers are convinced there is an adequate support network for them.

So what does an electric vehicle drive like? Just like an electric golf cart, appropriately enough. For one thing, there's almost no noise and no sensation of a revving engine. The electric cars are starting to look more like a gas-powered model on the inside, outfitted with seatbelts and radios. Air conditioners are optional, but drain the battery 35 percent quicker.

Few models offer more than two seats, but there are some trucks coming along that have enough power to carry a catering stand, for instance.

Chesson advises people to watch for more advancements in the next five years as batteries become stronger and power increases, allowing designers to incorporate more features that are standard in the conventional automobile.

"They're starting to build up, starting to get a little bigger," he said. "The inventory is growing."

WORD ON THE STREET

What item in your gas-powered vehicle would you insist be included in your electric car?

Page 8

STS-127 crew returns from 'by the book' mission

By Linda Herridge
Spaceport News

Kennedy Space Center Director Bob Cabana described the astronauts of the STS-127 mission as a crew who did an outstanding job delivering the remaining Japan Aerospace Exploration Agency's Kibo elements to the International Space Station. He welcomed the astronauts to the center during a crew return event on Sept. 15.

Commander Mark Polansky said the mission went by the book. He described the training required to complete five spacewalks and use three robotic arms to achieve the intricate mission objectives.

"For me personally, Kennedy Space Center is a very special place," Polansky said. "This is the place where real space vehicles and hardware are located."

NASA/Jim Grossmann

Crew members of the STS-127 mission returned to Kennedy Space Center to share stories, photos and videos of their experiences during the mission. From left, are Mission Specialists Dave Wolf and Julie Payette, Commander Mark Polansky, Pilot Doug Hurley, and Mission Specialists Christopher Cassidy and Tom Marshburn. The STS-127 mission was the final of three flights dedicated to the assembly of the Japanese Kibo laboratory complex on the International Space Station.

The crew of the STS-127 mission launched aboard space shuttle Endeavour on July 15. The 16-day mission ended with a picture-perfect landing at Kennedy's Shuttle Landing Facility on July 31.

"It's amazing how smooth the vehicle operated," Polansky said. "That is a testament to all of the workers here at Kennedy."

Polansky and his crewmates Pilot Doug Hurley, and Mission Specialists Chris Cassidy, Tom Marshburn, Dave Wolf and Canadian Space Agency astronaut Julie Payette showed a video and shared anecdotes about the mission.

Payette noted that when Endeavour docked with the station, the hatch was opened and shuttle crew members entered the station, it marked the first time that 13 people were all in one orbiting spacecraft.

Wolf, who spent about four months on the Russian Mir space station from late 1997 to early 1998, said it felt familiar when he entered the Russian side of the space station. With an international crew from several countries, Wolf and crewmates enjoyed the diversity of music, food and language.

Cassidy compared spacewalks to diving and training in the Neutral Buoyancy Laboratory at Johnson Space Center in Houston.

"In space there's always transient motion," Cassidy said. "We had to learn how to keep still."

As the event came to an end, Cabana presented each astronaut with special commemorative coins from Kennedy. Polansky, in turn, presented a special photo of the space station with an American Flag to Cabana to honor the dedicated workers at the center.

Deceptive weather challenges pathfinder, Discovery's return

Space shuttle Discovery returned to Kennedy Space Center on Sept. 21 perched on top of a modified Boeing 747 jumbo jet. But it wasn't an ordinary cross-country piggyback journey. In fact, the two-day ferry flight from California proved to be one of the greatest tests ever for the NASA C-9 "pathfinder" aircraft that scouts safe routes ahead of the shuttle.

"This shuttle return is the biggest challenge I have ever faced," said C-9 aircraft pilot Charles Justiz. "Had the weather been any more finicky, we likely would have landed somewhere else."

The pathfinder does just what its name implies, finds a path free of rain that could damage heat tiles and colder temperatures that might freeze propellants.

NASA/Kim Shiflett

The Boeing 747 Shuttle Carrier Aircraft, or SCA, with space shuttle Discovery on top, is ready for towing from the Shuttle Landing Facility's Runway 33 at Kennedy Space Center after touching down at 12:05 p.m. EDT on Sept. 21.

The team made three pit stops along the way: Rick Husband International Airport in Amarillo, Texas, for fuel, another re-fuel at Ft. Worth Naval Air Station in Texas, and an overnight stay at Barksdale Air Force Base in Shreveport, La.

Although the caravan faced several walls of storms on its 2,500 mile journey to Florida, weather was not much of an issue until the C-9 flew into the sunshine state's airspace.

"All the holes in the storms we thought were there... weren't," Justiz said. "Today was quite an experience . . . our entire team was busy today."

After taking off from Louisiana the morning of Sept. 21, the C-9 aircraft started running into a string of storms. Workers at Kennedy were unsure where Discovery would land, until minutes beforehand. MacDill Air Force Base in Tampa and Orlando International Airport were options if Kennedy's weather proved to be too dynamic.

"Once we left Barksdale, we didn't know what kind of weather we were going to get," said Don McCormack, ferry flight manager. "(NASA has) the best weather forecasters you can possibly have."

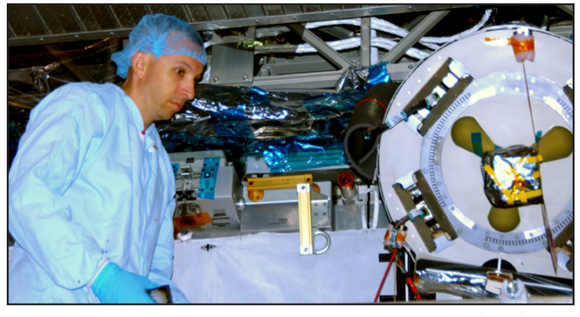
After five attempts, the C-9 aircraft finally found a hole and approached Kennedy's Shuttle Landing Facility from the north. Workers on the ground saw something much different, and directed the 747 with Discovery atop to land from the south on Runway 33. Touchdown occurred at 12:05 p.m., about 10 minutes after the pathfinder.

Discovery now is being prepared for its next mission: STS-131 targeted to launch to the International Space Station in March 2010.

Scenes Around Kennedy Space Center

NASA/Sandra Joseph - Kevin O'Connell

Smoke billows around the United Launch Alliance Delta II rocket as it launches into space carrying the Space Tracking and Surveillance System - Demonstrator, or STSS-Demo, spacecraft Sept. 25 at 8:20 a.m. EDT. NASA launched the space-based sensor component for the U.S. Missile Defense Agency.

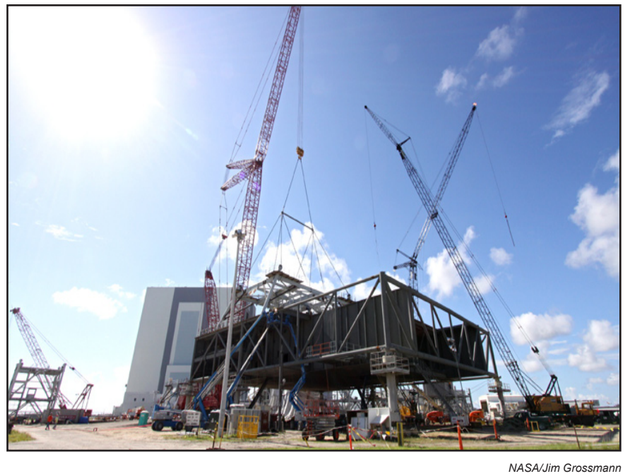


NASA/Jim Grossmann

STS-129 Mission Specialist Randy Bresnik gets a close look at hardware installed on the Express Logistics Carrier, or ELC, in Kennedy Space Center's Space Station Processing Facility during a Crew Equipment Interface Test on Sept. 10. The carrier is part of the STS-129 payload on space shuttle Atlantis, which will deliver two spare gyroscopes, two nitrogen tank assemblies, two pump modules, an ammonia tank assembly and a spare latching end effector for the station's robotic arm to the International Space Station. STS-129 is targeted to launch Nov. 12.

NASA

ATK Vice President and former astronaut Jim Halsell spoke to the Executive Safety Forum on Sept. 22 about the Columbia accident, lessons learned, and how those lessons apply to day-to-day decisions now and in the future at Kennedy Space Center. The group, led by Center Director Bob Cabana, went to the Vehicle Assembly Building to visit the Columbia debris and check out the stacked Ares I-X rocket.



NASA/Jim Grossmann

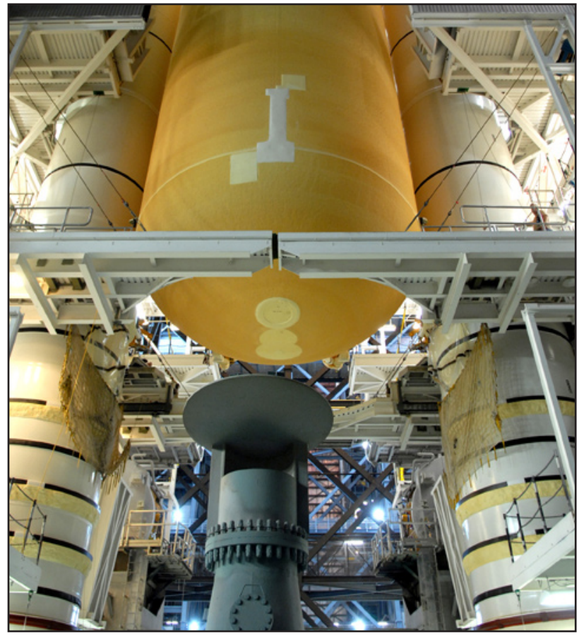
Huge cranes help build the new mobile launcher, or ML, for the Constellation Program's Ares rockets behind Kennedy Space Center's Vehicle Assembly Building. The ML will be the base to launch the Orion crew exploration vehicle. The base is being made lighter than space shuttle mobile launcher platforms so the crawler-transporter can pick up the added load of the 345-foot tower and rocket. When the structural portion of the new ML is complete, umbilicals, access arms, communications equipment and command/control equipment will be installed.

Spaceport News wants your photos, ideas

Send photos of yourself and/or your co-workers in action for possible publication. Photos should include a short caption describing what's going on, with names and job titles, from left to right. Also, if you have a good story idea chime in.

Send your story ideas or photos to:

KSC-Spaceport-News@mail.nasa.gov



NASA/Jim Grossmann

The external fuel tank for space shuttle Atlantis' STS-129 mission is lowered between the solid rocket boosters stacked on the mobile launcher platform in the Vehicle Assembly Building. The STS-129 mission is targeted to launch Nov. 12 on an 11-day supply mission to the International Space Station.

NASA

Buzz Lightyear poses after returning to Earth aboard space shuttle Discovery on Sept. 11. The toy spent 15 months aboard the International Space Station supporting NASA's education outreach program. Following his return, Disney is partnering with NASA to create a new online educational game and an online mission patch competition for school-aged kids across America. On Oct. 2, NASA will announce a new initiative where students can develop an experiment for the space station crew.

‘Now is the Time’ for Combined Federal Campaign

By Linda Herridge
Spaceport News

Giving back to the community always has been a trademark of Kennedy Space Center’s workers. With the slogan, “Now is the Time,” the 2009 Combined Federal Campaign, or CFC, officially begins Oct. 14 and will run through Nov. 13.

The CFC kick-off event with guest speaker Bernie Sher will be Oct. 16 at 11 a.m. in the Training Auditorium. Sher is a cancer survivor and Tour of Hope cyclist.

An expo featuring CFC-related groups, such as cancer care centers, hospitals and other charities, will be held from 10 a.m. to 2 p.m. in the Operations and Checkout Building’s Mission Briefing Room.

The Tour de KSC event will be Oct. 17.

NASA

Kennedy Space Center 2009 Combined Federal Campaign cabinet members gather around Center Director Bob Cabana as he signs the letter announcing this year’s campaign.

During a signing ceremony with the CFC Cabinet, Center Director Bob Cabana thanked the volunteer representatives from each directorate for their help.

“It would be great to have 100 percent participation, but 90 percent would be good too,” Cabana said. “Let’s have a really successful year for the CFC.”

Whether it be child advocacy, supporting the needy, advancing medical research, caring for animals or preserving our wilderness, Cabana said the breadth of opportunities for charitable giving available through the CFC provides many ways to focus giving toward personal interest.

CFC Chairperson Joyce Riquelme said a significant change this year is that contributions will now be made utilizing Employee Express, an online service that allows NASA employees to access their benefits and payroll information. She said key solicitors will be providing detailed instructions on this new feature.

Riquelme said this year’s CFC goal is $430,500.

“Increasing work force participation is our primary goal,” Riquelme said. “Giving back to the community is a key aspect of leadership.”

CFC co-chair, Leslie Alderman, said more information on events and opportunities to contribute will appear in the KSC Daily News and on Kennedy’s CFC Web site at: http://cfc.ksc.nasa.gov.

“Kennedy workers always rise to the occasion, and I know this year will be no exception,” Cabana said. “By our generosity, we truly show that ‘Now is the Time.’”

UCF intern plays integral role in developing Iris screen

Until this year, Brandon Lojewski’s rocket experience included a handful of model rocket launches. This summer, the Kennedy Space Center intern witnessed rocket launches of a larger magnitude and different view.

On June 18, Lojewski sat on console in the Launch Vehicle Data Center at Cape Canaveral Air Force Station for the launch of the Lunar Reconnaissance Orbiter and Lunar CRater Observation and Sensing Satellite on an Atlas V rocket.

On June 27, he was back at the Cape for the launch of a Geostationary Operational Environmental Satellite on a Delta IV.

“To say the least, the Delta IV and Atlas V are quite a bit more complicated than the paper TARC (Team America Rocketry Challenge) rockets,” Lojewski said.

NASA

Brandon Lojewski, a student working at earning a bachelor’s and a master’s degree at the University of Central Florida, recently assisted in designing, developing and publishing Iris pages displayed for launch.

The University of Central Florida student was an intern in the Mission Integration Branch of NASA’s Launch Services Program. He interned through the Space and Aeronautics Internship Program, sponsored by Space Florida and the Florida Space Grant Consortium.

One of Lojewski’s projects was designing, developing and publishing Iris pages displayed to engineers on console for launch.

“Iris pages are a graphical interface, which displays all of the real-time telemetry measurements from the launch vehicle and spacecraft for the engineers to monitor during the launch countdown, liftoff and ascent,” Lojewski explained. “Currently, all of the necessary parameters the integration engineers monitor are either scattered over multiple Iris pages or do not have a user-friendly graphical interface, potentially leading to confusion during the countdown.”

To improve the mission integration process, Lojewski designed and developed generic and launch vehicle fleet-specific Iris screens to display all the necessary parameters in a single screen.

He outlined and defined the display requirements, used software to create the new screens, and presented the screens to a software review board for final approval.

“Brandon made an enormous contribution to our branch developing these Iris screens. We now have all the information we need to watch during the countdown on one consolidated screen,” said Mary Faller, Mission Integration Branch chief, Fleet and Systems Management Division. “This is crucial to our efficiency during a launch countdown. Without Brandon’s enthusiastic help, this special project would have continued to languish.”

Another task he had this summer was assisting with the creation of a lessons learned database. Lojewski worked alongside the software developers to ensure all requirements were implemented into the database interface.

Lojewski currently is working toward a bachelor’s and a master’s degree in materials science and engineering through an accelerated master’s program at the University of Central Florida.

Remembering Our Heritage

Eastern Range earned its name 45 years ago

By Anita Barrett
Spaceport News

To launch a rocket or a space shuttle from Florida's Space Coast takes teamwork from two distinct federal agencies -- NASA at Kennedy Space Center and the U.S. Air Force at Cape Canaveral Air Force Station. A primary example of that teamwork is the development and operation of the Eastern Range.

A range is an area in and over which rockets are fired for testing and tracking. The Air Force needed a range for over-water flight trajectories, which make long-range missile flights possible over an area relatively free of world shipping lanes and inhabited land masses.

So, in the 1949-50 timeframe the Bahamas Long-Range Proving Ground, or just Long-Range Proving Ground, was developed. During the 1950s, the range comprised nine tracking sites over the first 1,000 miles. By January 1960, the range extended 5,000 miles and included 13 major stations, about 91 outlying sites, a fleet of ships and three marine support stations.

Over the years, the range's name changed several times. It unofficially was called the Florida Missile Test Range in 1952, and officially, the Atlantic Missile Range beginning in May 1958 though NASA's Mercury Program.

On May 15, 1964, the name of the range was changed to the Eastern Test Range, as it was known throughout the Gemini and Apollo programs. Around October 1990, "Test" was dropped from the name, and the range currently is known as the Eastern Range.

By 1961, NASA was using old Air Force and Army launch sites on Cape Canaveral for its Mercury Program. The agency also had three major launch complexes of its own -- 34, 36 and 37 -- under construction on the Cape for the Atlas-Centaur and Saturn programs.

On Aug. 24, 1961, the Webb-Gilpatrick Agreement between NASA and the Department of Defense was signed to establish funding practices on the range.

Though the agreement mentioned a "single manager concept" for operating the range, it also sanctioned the principle of divided ownership in the launch area. Consequently, management of what was known as the Merritt Island Launch Area, or MILA, went to NASA, and the Air Force retained control of Cape Canaveral.

By September 1963, the range extended around the tip of South Africa to the island of Mahe in the Indian Ocean. Many of the range's old missile and space programs either matured or disappeared by the late 1960s.

Refurbishment of Cape Canaveral's launch pads followed in the late 1980s and early 1990s, and there was an ongoing effort to modernize the range with a new Range Operations Control Center, fiber optics communications, radar, telemetry, and consolidated instrumentation facilities at Antigua Air Station and Ascension Auxiliary Air Field.

Today, Cape Canaveral serves as the range's space processing and launch area, and the Air Force controls the range for all eastern-bound launches.

Along with the launch complexes, the Air Force and NASA share other real estate sites, including hangars AF and AE at the Cape.

Hangar AE contains control rooms that provide real-time voice, data and video information for NASA's expendable launch vehicle checkout and launch operations.

Hangar AF is used by the Space Shuttle Program's solid rocket booster recovery ships.

Today, the Eastern Range extends more than 10,000 miles from the Florida mainland through the South Atlantic and into the Indian Ocean. It includes the launch head at the Cape and a network of instrumentation stations, including Malabar and Jonathan Dickinson tracking annexes and downrange sites at Antigua and Ascension.

Air surveillance to make sure commercial aircraft are clear of restricted areas during launch countdowns, as well as weather forecasts, is coordinated by the Air Force's 45th Space Wing. Waters within the launch safety zone are patrolled jointly by the U.S. Coast Guard and the Air Force -- thus fostering more teamwork across federal agencies.

Mark Cleary, 45th Space Wing historian, contributed to this article.

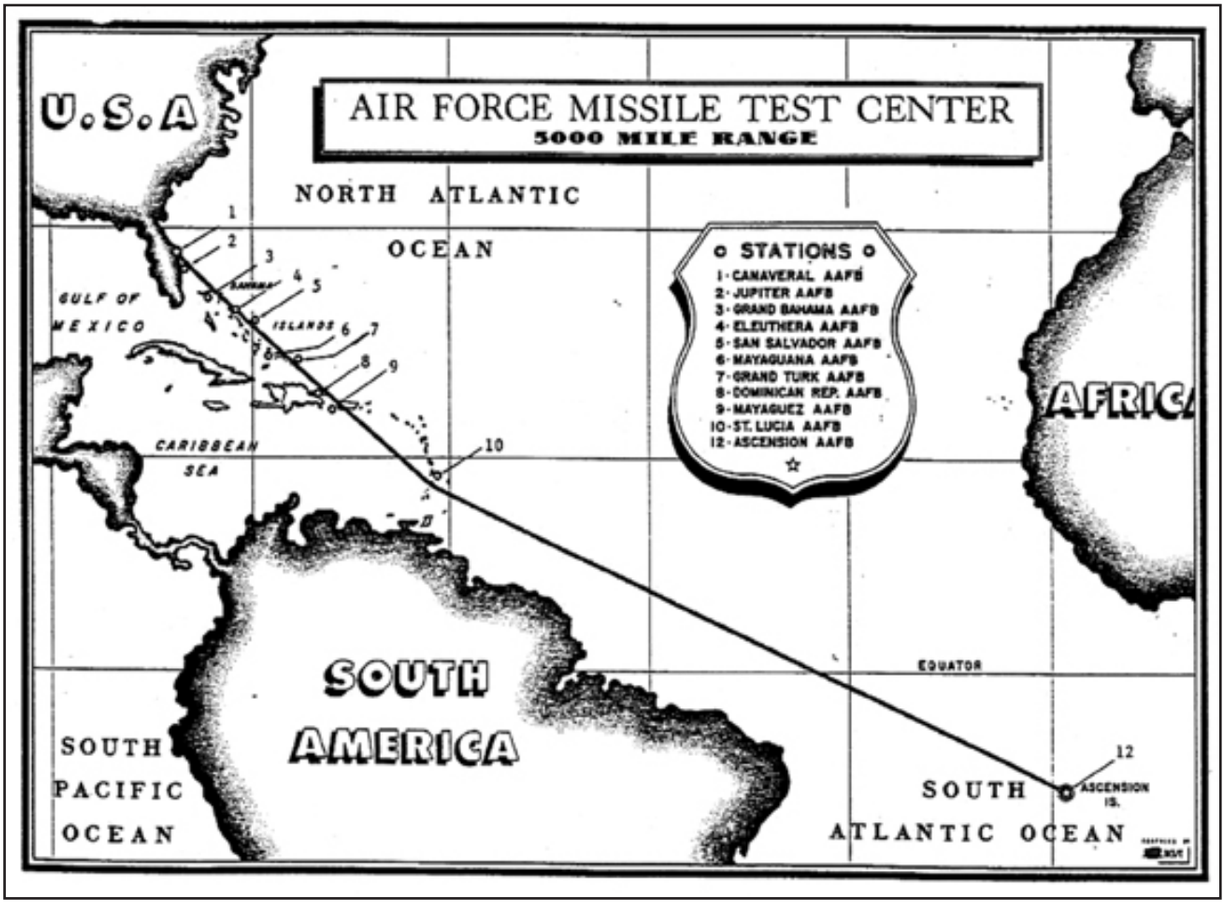


Photo courtesy of U.S. Air Force

The Eastern Range, which was unofficially called the Florida Missile Test Range in 1952, as seen above. The range starts at the launch pads at Cape Canaveral Air Force Station and Kennedy Space Center and extends eastward over the Atlantic Ocean and into the Indian Ocean where it meets the Western Range, which is the space launch range that supports launches from Vandenberg Air Force Base in California.

Human Resource Expo set for Oct. 23 at Headquaters

NASA's Human Resources offices will host a Human Resource Expo on Friday, Oct. 23, from 11 a.m. to 2 p.m. at the east end of Kennedy Space Center's Headquarters Building.

The expo will offer Kennedy's work force a chance to become familiar with Human Resources services and staff, including specialists, and development, organizational development and work force planning representatives.

Each office will provide specialized handouts and information about their capabilities, resources and benefits. There also will be demonstrations of some Web tools, such as ePDS and HCIE, in Conference Room 2533.

In addition to learning about specific Human Resources roles, there will be a real spacesuit to try on, an Ares I-X model, FIRST Robotics robot, space food and complimentary homemade desserts.

Door prizes will be awarded throughout the event.

For more information, call Jane Mosconi at (321) 861-5367.

Looking up and ahead . . .

Targeted for Oct. 27	Launch/KSC: Ares I-X flight test; Window: 8 a.m. to noon EDT
Targeted for Nov. 12 Planned for Nov. 23	Launch/KSC: Atlantis, STS-129; 4:04 p.m. EST Landing/KSC Shuttle Landing Facility: 12:12 p.m. EST
Targeted for Nov. 14	Launch/CCAFS: Atlas V, Intelsat 14; 12:48 to 2:18 a.m. EST
Targeted for Nov. 18	Launch/CCAFS: Delta IV, WGS SV-3; Window: 7:45 to 8:30 p.m. EST
No earlier than Nov. 29	Launch/CCAFS: Falcon 9, TBD; Window: 11 a.m. to 3 p.m. EST
No earlier than Dec. 7	Launch/VAFS: WISE; Window: 9:10 to 9:23 a.m. EST
No earlier than Feb. 3	Launch/CCAFS: Atlas V, SDO; 10:53 to 11:53 a.m. EDT
Targeted for Feb. 4	Launch/KSC: Endeavour, STS-130; 6:20 a.m. EST
Targeted for February	Launch/CCAFS: Delta IV, GPS IIF-1; TBD
Targeted for March 18	Launch/KSC: Discovery, STS-131; 1:08 p.m. EDT
No earlier than April 7	Launch/CCAFS: Delta IV, GOES-P; TBD
Targeted for May 14	Launch/KSC: Atlantis, STS-132; 3:05 p.m. EDT
Targeted for May 23	Launch/VAFB: Delta II, Aquarius / SAC-D Satellite; TBD
Targeted for July 29	Launch/KSC: Endeavour, STS-133 or Discovery, STS-134; 8:45 a.m. EDT
Targeted for Sept. 16	Launch/KSC: Discovery, STS-134 or Endeavour, STS-133; 1 p.m. EDT
No earlier than Oct. 1	Launch/VAFB: Taurus, Glory; TBD
Targeted for Fall 2011	Launch/CCAFS: Atlas V, Mars Science Laboratory; TBD

WORD ON THE STREET

What item in your gas-powered vehicle would you insist be included in your electric car?

"A/C . . . there is no way I am going to have my hair blowing around with the windows down."

Ivette Aponte, with NASA

"A stereo . . . so I can get motivated on the way to work and relax on the way home."

Mary Gibson, with Brevard Achievement Center

"A/C . . . I can do without the radio but I really need to have air conditioning."

Dale Wilson, with Abacus Tecnology Corp.

"I have to drive an hour to and from work, so I really count on my XM radio."

Dusty Leinbach, with EG&G

"Air conditioning . . . my family will not ride in a car without it."

Kevin Berry, with United Space Alliance

John F. Kennedy Space Center

Spaceport News

Spaceport News is an official publication of the Kennedy Space Center and is published on alternate Fridays by External Relations in the interest of KSC civil service and contractor employees.

Contributions are welcome and should be submitted **three weeks** before publication to the Media Services Branch, IMCS-440. E-mail submissions can be sent to **KSC-Spaceport-News@mail.nasa.gov**

Managing editor . . . . . Candrea Thomas
Editor . . . . . Frank Ochoa-Gonzales
Copy editor . . . . . Rebecca Sprague

Editorial support provided by Abacus Technology Corp. Writers Group.
NASA at KSC is on the Internet at www.nasa.gov/kennedy
USGPO: 733-049/600142